Regional Issues

Pacific Region

The first of four regional meetings on the megaship issue was held in Seattle, Washington, on March 20 and 21, 1997.

By 2010, the West Coast could see as many as 46 megaships operating in trans-Pacific service to Long Beach/Los Angeles, Seattle/Tacoma, and possibly to other U.S. ports such as Oakland and Portland if they can be dredged to accommodate these vessels. Port representatives were especially interested in seeing what the trends in integrated intermodal movement will be, and determining what should be done to change their terminals. The critical issue expressed at this meeting was "How can transportation facilities handle the large numbers of containers associated with megaship calls?" Transportation industry officials at the meeting pointed out that economic growth will be determined by how well they are able to get freight off the docks and through the system. For participants at the West Coast regional meeting, cargo peaking was a very important issue as were strategic trade corridors and integrated movements.

There are approximately 17 million people in the Los Angeles metropolitan area—the second highest concentration of consumers in the nation—and this market base determines that the San Pedro Bay ports of Los Angeles and Long Beach are likely candidates for vessel calls by megaships. In 1987, the Ports of Los Angeles and Long Beach developed a macroeconomic forecast for 2010 that assumed 6.8 percent growth annually based on the stability of the local, regional and international economies. The Ports of Long Beach and Los Angeles looked at the forecast five years later and found the projections were well below the real rate of growth. Growth in the carrier business over the last decade has created problems in keeping up with the demand. The San Pedro Bay ports have a $2 billion growth plan for the next five years. It is possible that projections today could be below the real rate of growth five years from now.

The Port of Oakland is experiencing many of the same problems as the San Pedro Bay ports, and is committed to maintaining market share and enhancing its marketing position among West Coast ports. The port's perspective on megaships is that if it can't get the biggest ships, it wants to attract business as a transhipment port serving smaller vessels and handling intermodal freight. The Port of Oakland is reconfiguring its terminals and spending $100 million in infrastructure improvements just to serve its existing clients. Oakland representatives said that port development was severely constrained by a lengthy process to secure approval for dredging, but was able to create wetlands at the Sonoma Baylands with its dredged materials.

The Port of Seattle is building three new container facilities, dredging alongside existing berths, and making other capital expenditures to absorb a projected annual growth of 2.4 percent. The Port of Tacoma forecasts 3 to 5 percent annual growth over the next five years. Many attendees from the Pacific Northwest said that the Ports of Seattle, Tacoma and the entire Puget Sound need to be viewed as a single entity serving the northwestern trade corridor. The ability to improve freight rail service at higher speeds was made problematic by large numbers of at-grade highway rail crossings—grade separation work in Washington State alone

Water Depth and Throughput—Pacific Ports

Port	Channel Depth	Berth Depth	1996 Throughput (TEUs)
Anchorage	30-70	35	337,770
Vancouver, B.C.	50	40-50	616,692
Seattle	175	40-50	1,473,561
Tacoma	40-50	40-50	1,073,471
Portland	40	40	302,171
Oakland	42	35-42	1,498,202
Los Angeles	45*	45	2,682,802
Long Beach	76	35-50	3,067,334
Honolulu	45	40	453,044

*50' project underway

Source: AAPA and Containerisation International Yearbook

was projected to cost $900 million. Conference participants from the Pacific Northwest were also concerned that northern tier rail service in the United States is less reliable in winter than rail service through Canada which has better track maintenance.

It was emphasized that the linking of intermodal freight for U.S. trade corridors needs to be seamless if American ports are to remain competitive. Representatives from the West Coast said that cargo is moving to Vancouver, British Columbia due to inadequate rail service and highway connections to U.S. ports. Attendees believed that Canadian port development has benefitted substantially from improved rail connections. Delta Terminal in Vancouver is Canada's newest marine rail terminal and transports 75 percent of its intermodal freight by rail. The Canadian rail system parallels that of the United States and runs uninterrupted east-west from Halifax and Montreal to Vancouver. Representatives from the Ports of Seattle and Tacoma believed they would lose business to the Delta Terminal, which has rail connections across Canada and down through Minnesota to Chicago.

While it is too early to tell whether the new Delta Terminal is attracting traffic that had been going to U.S. ports, it is important to note that a shipper's cargo routing decisions are influenced by a number of cost and service factors, whose relative importance will vary by carrier and trade route. These factors include cost, reliability, security, loss and damage, special handling requirements, and diversification of transportation options. The last factor refers to the fact that some shippers prefer to use multiple carriers and ports of entry in the same trade, because they feel this option will provide more competitive rates and reduce the risk if disruptions occur in the distribution chain.

At the West Coast regional meeting, the Washington statewide transportation plan was used as an example of how conventional transportation planning may need to be expanded to consider demands created by megaships. Large-scale intermodal planning will force planners to consider the role of State transportation agencies in supporting transportation infrastructure that it may not own and operate. Meeting participants struggled with the issues of "What is the State's interest?" and "What could the State do with facilities that it does not own or operate?" Washington State DOT representatives said they had found that there is a State advocacy role in some projects where the State has no direct role but does have a definite interest. These representatives saw the need to develop a strategic spending plan, and are looking into ways to overcome boundary jurisdictions and trust fund restrictions to do this. However, those at the West Coast meeting were unanimous in their belief that tools must be developed to help local and State transportation agencies make decisions beyond local parochial issues.

Gulf Region

The second regional meeting on megaship issues was held in Houston, Texas, on June 17 and 18, 1997.

Although the Gulf region has the smallest intermodal market base of the designated four regions, demand-driven shipping forecasts project that ports in this region will experience the strongest growth in containerized trade. In the Gulf region, eight of 10 states

Water Depth and Throughput—Gulf Coast Ports

Port	Channel Depth	Berth Depth	1996 Throughout (TEUs)
Houston	40*	38-40	794,481
Gulfport	36	36	153,470
New Orleans	36-45	35	261,007

*45' project underway

Source: AAPA and Containerisation International Yearbook

have coastlines and/or extensive river systems. A north/south corridor from the Gulf to Chicago is projected to develop to take advantage of Central American, South American and Caribbean trade. Over the next decade, NAFTA will increase freight traffic within the United States, especially in north/south rail corridors. Analysts believe that the South American market—particularly the East Coast of South America—has proven its maturity and will continue to become more robust. If the Cuban embargo is lifted, there will be tremendous opportunities for growth. There is an initiative in 13 Southeastern states, including 10 states in the Gulf region, to examine freight movement scenarios between that region and Central America.

If megaships do make ports of call within the Gulf region, there is not enough data on landside access, infrastructure, and transshipment scenarios to accurately gauge the potential impacts of their arrival within this region. Participants in the Gulf regional meeting observed that there will be winners and losers if there is a market for one or two ports to accommodate megaships in the Gulf of Mexico. While winning in this case would result from attracting more business, the participants also saw a significant downside because there will be major infrastructure problems that the "winning" port must face. Those in attendance felt that if a Gulf region port wins the status of being called upon by the megaships, the other ports would become feeder ports. Many in the audience predicted that megaships operating in the Gulf region would not target Houston as a hub port or transshipment point, but as a feeder port that serves as a gateway to inland access.

Representatives of ports in the Gulf region thought that their best strategy would be to focus on unique niches where they could capitalize on their capability to move selected cargos. Gulf port representatives saw advantages in positioning themselves as feeder ports that would capture freight traffic emerging from new trade flows. These participants saw the importance of anticipating the service needs of shippers who would be thinking "How do I take new commodities and move them inland to Chicago or other destinations as the markets change?"

Some of this advanced service infrastructure is already in place. The Port of Houston has its own freight information system called FAST, which is tied to the carriers, railroads and truckers to let them know the status of freight shipments. The port places a computer terminal in the office of high volume carriers and communicates with them through electronic data interchange (EDI). For smaller carriers, the port uses a fax system. Nearly 50 percent of Houston's container traffic has gone paperless.

Attendees at the Gulf regional meeting saw problems resulting from railroads not sharing information with truckers. Ports had to assume the role of communications broker and give truckers and railroads a number to call to find out if a shipment is available for pickup. To do this, the ports have to access information from the importer and the carrier and merge the data from the two. Gulf ports also are working on a system to build information from the exporter and importer to incorporate all the different incoming data. There are different database and information systems for different modes, but all of the ports are working on a unified manifest system based on electronic interfaces with the carrier so there is no need to deal with a manifest.

Among the states with progressive freight planning programs, Texas has created a port advisory committee to advise ports on surface transportation improvements and planning activities that should receive their attention. One-stop shopping is being developed for motor carrier permits. The state also has adopted a procedure for pre-processing trains crossing Texas bridges at border crossings that increases the amount of traffic that can be handle by the unobstructed bridge. Trains are moved off the bridge and into a rail yard where Customs Service agents inspect every container in every shipment. Trains can be preprocessed 72 hours in advance and money exchanged between consignee and shipper at the border.

North Atlantic Region

The third regional meeting on megaship issues was held in New York City on July 9 and 10, 1997.

In the North Atlantic (Baltimore and north), market analysts have forecast the development of 7 or 8 megaship berths to serve North Atlantic shipping lanes and the largest customer base in the country. Although the impact of megaships on the East Coast is projected to be significantly less than on the West Coast, East Coast port capacity (including channel depth, terminal storage, and crane capability), and the supporting surface transportation system, would be hard-pressed to meet the traffic surges created by the arrival of megaships. Even if the ships themselves don't call on U.S. ports on the North Atlantic coast, the ports will have to handle larger volumes of megaship cargo through transshipments because this region is a major consumer market.

Dredging was perhaps the paramount issue confronting the North Atlantic ports, with the possible exception of Baltimore. The inability to timely and inexpensively dredge was seen as a federally-created problem. Port representatives felt that rules for disposing of dredged material had been changed in the course of their application for permits, and that they were being held to more exacting standards than at any time in the past. Toxicity of dredged material is now being measured down to the level of parts per million—levels that weren't even measurable a decade ago. Ocean disposal sites for dredged materials have been closed, and meeting participants were concerned that ports couldn't sustain current costs for disposal on land. Participants challenged the Federal Government to find cost-effective ways for ports to dispose of dredged materials.

Meeting attendees viewed the process for securing dredging permits as being unacceptably long. Much of this delay, however, results from shortcomings in planning by ports, States, and Federal agencies for the management of contaminated dredged material than regulatory and testing requirements. In the case of the New York/New Jersey Harbor, the disposal of contaminated dredged material is further complicated by the difficulty in reconciling the economic and environmental needs and desires of two States and numerous local governments.

To accommodate megaships, meeting participants were told that the 40 and 45-foot channel depths of today might have to go to at least 50 feet in the future, because 40 to 46 feet will be the maximum draft for fully-loaded megaships. Several people in the audience noted that waves in the water may change requirements for the channel depth and that water passing under a ship's keel also creates wave damage to the channel. As a result, it is likely that megaships will require 50 feet of channel depth, with equivalent depths for turning, moving, as well as docking.

In the North Atlantic regional meeting, a number of attendees commented that the Conrail divestiture has reawakened States to the importance of freight issues. Metropolitan Planning Organizations (MPOs) are beginning to hear from cities about goods movement because it is becoming an increasingly visible economic issue for the cities. Meeting participants also noted that there is a growing awareness among MPOs that freight transportation goods movement transcends local interests. Issues that previously had been of interest only to ports, such as dredging, are now being raised at regular MPO meetings. Those at the meeting were concerned, however, about the lack of coordinated

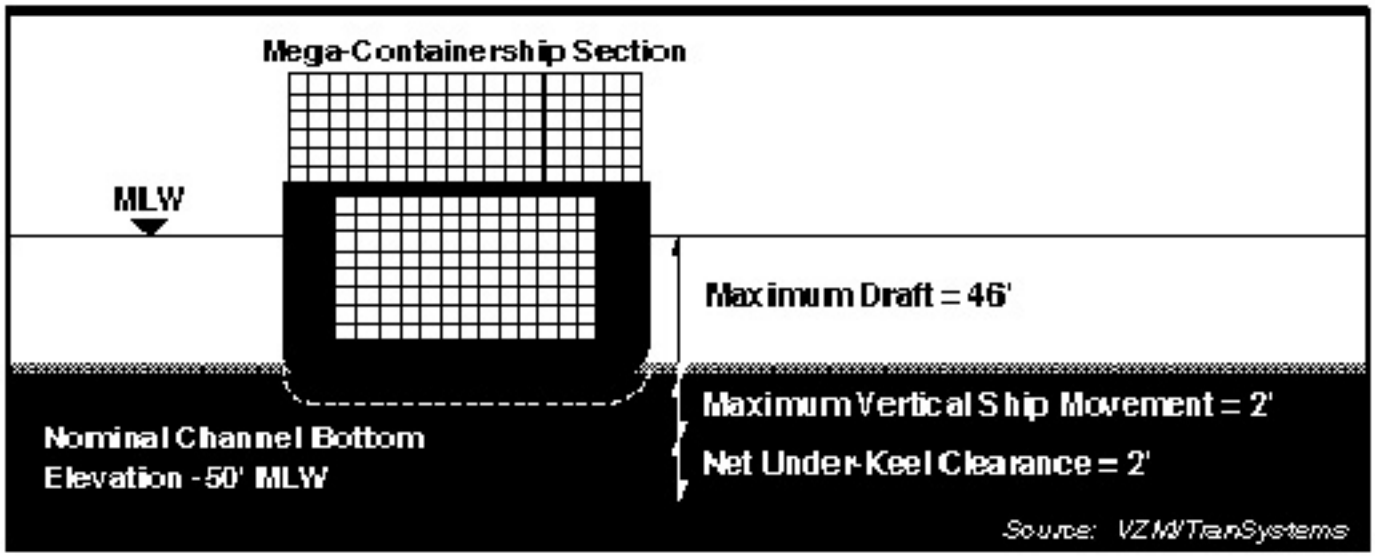
Water Depth and Throughput—Atlantic Ports, Northern

Port	Channel Depth	Berth Depth	1996 Throughput (TEUs)
Montreal	36	35	852,530
Halifax	60	45-47	392,273
Boston	40	40	127,087
NY/NJ	40*	35-45	2,269,500
Philadelphia	40	40	95,086
Wilmington, DE	38	38	162,884
Baltimore	50	36-42	474,816
Hampton Roads	50	32-45	1,141,357

*45' project authorized

Source: AAPA and Containerisation International Yearbook

Channel Design Depth for Mega-Containerships



effort to bring all of the forces together because the state governments in the North Atlantic region have their own agendas and issues. The need for a coordinated regional effort was considered vital in addressing transportation impacts associated with changes in ship design.

Speakers noted that while transportation was recognized as a key to economic development, highway freight movements often have difficulty in reaching urban destinations because of automobile traffic. For example, New Jersey DOT has worked with other state and local agencies to put dedicated truck corridors within railroad rights of way in abandoned industrial areas, or "brownfields". By using brownfield rights-of-way for roads to ports, truck traffic could bypass heavy commuter traffic. Under one proposed plan, truck trips from a port to a rail terminal would take 15 to 20 minutes as opposed to the 45 minutes to an hour on crowded roads. Support from the railroad and state trucking association was seen as critical in advancing the project.

In addition to physical infrastructure improvements to increase transportation system capacity, improved communications technology was cited as offering potential capacity improvements. Terminal operators spoke about the recently installed gate systems that use computer character recognition technology to read tag numbers as containers enter terminal gates. This information is automatically transferred to the office for processing, along with driver's license, truck registration, truck safety, and tax payment information. The investments are made by the user, the chassis owner, and the terminal operator who also are the primary beneficiaries. It was suggested that the consortium of States belonging to I-95 Corridor Coalition could use this technology to track containers through the corridor.

Those at the North Atlantic regional meeting noted that Electronic Data Interchange (EDI) would be useful in conveying other information, such as container contents and cargo weight that would meet requirements of the Intermodal Safe Container Transport Act of 1991. Container usage is sensitive to fluctuations in freight rates which will determine whether a commodity is shipped breakbulk or in containerized units. General cargo is being converted to containers and consolidated cargo shipments are getting heavier, resulting in increased average loaded weights of containers. Conference participants saw potential benefits in using electronic data interchange to transmit information on container weight and content throughout the transportation chain from shipper to terminal to drayman.

Speakers noted that resolving the problems facing ports has been made more difficult by the proliferation of agencies and regulations. As a result, those ports with the most streamlined authority often find it easier to make infrastructure improvements. The Massachusetts Port Authority used this streamlined authority to convene multiple regulatory agencies and gain approval for an eight point strategic plan that included, among other things, channel dredging, rail tunnel reconstruction to accommodate double stack container movements, and the construction of an inland warehouse facility. The Port of Boston would like to work with The Port Authority of New York and New Jersey to create a regional gateway to handle cargo moving in the North Atlantic shipping lanes.

South Atlantic Region

The last of four regional meetings on megaships was held in Norfolk, Virginia, on July 23 and 24, 1997.

Market projections forecast that growth in maritime shipping could support 5 to 6 megaship berths to serve South Atlantic shipping lanes. For meeting attendees, the basic question was "What is the largest vessel that is likely to call on an East Coast port?" If megaships do call on U.S. ports on the South Atlantic Coast, meeting participants believed that there was an opportunity for major transportation providers (ports, ocean carriers, railroads, highway agencies) and users (DOD, metropolitan areas, shippers) to determine where a hub port on the East Coast will be.

The implications of major changes in trade corridors and shipping practices received a great deal of attention at the South Atlantic regional meeting. Participants noted that as markets move further west to India and China, gateways for intermodal freight traffic in this country could move from the West Coast to the East Coast in response to rising costs at the Panama Canal, the inability of post-Panamax vessels to transit the Canal, and overland transit times to the East Coast. They observed that it costs the same to carry cargo from Hong Kong to Los Angeles as it does to ship it by rail from Los Angeles to New York. A few years ago the Far East center of manufacturing was in Japan and Korea; today the centroid is Singapore. The manufacturing centroid also could move to China or India where textile production and manufactured goods are growing rapidly. If the centroid moves to the Indian sub-continent, an increased percentage of freight traffic could arrive on the U.S. East Coast by way of the Suez Canal.

Neptune Orient Lines, for example, uses ship movements through the Suez Canal and found that it could reach the U.S. East Coast in 2 to 4 days less than its conventional trans-Pacific route using transcontinental rail from the West Coast. If there is service to the East Coast via the Suez Canal, the cost of transcontinental railroad shipment is eliminated. Four years ago, only 1.5 percent of U.S.-bound traffic went through the Suez Canal and today that figure is 6 percent. It is unlikely that Suez traffic will overtake Pacific traffic, however, because there is insufficient back haul cargo to transport on the return trip through the Suez Canal. This, of course, could quickly change as cheaper back-haul rates could spur increased market demand for U.S. and Mediterranean export cargo.

Large-scale transshipment ports that could handle megaships also are being considered for Freeport, Bahamas; Kingston, Jamaica; Puerto Rico; and both coasts of Panama. Ships calling on these transshipment hubs will be responding to developing markets and changing trade flows. A Freeport transshipment hub would take advantage of market development of the East Coast of South America. Freeport also is a good choice for a hub because it has sufficient harbor depth and labor costs are lower than in U.S. East Coast ports. By comparison, San Juan, Puerto Rico has higher harbor costs and only a 35' depth. San Juan, however, does have very good throughput capability through its MIT terminal and could become a hub for transhipment to the U.S. Gulf Coast and Mexico.

Many participants at the South Atlantic regional meeting said that the military could play a major role in proactively determining the location of a U.S. transshipment port to handle megaships. In the current

Water Depth and Throughput—Atlantic Ports, Southern

Port	Channel Depth	Berth Depth	1996 Throughput (TEUs)
Wilmington, NC	40	40	103,579
Charleston	42*	40	1,078,590
Savannah	42	42	650,253
Jacksonville	38	38	613,448
Palm Beach	33	33	174,870
Everglades	47	37-44	701,281
Miami	42	42	656,798
Freeport	47	47	new terminal
San Juan, PR	35	35	1,640,624

*45' project authorized

Source: AAPA and Containerisation International Yearbook

environment of military downsizing, there is an initiative from the Department of Defense United States Transportation Command (USTRANSCOM) to find out whether ports would be interested in developing land on military bases in exchange for agreements to give the military access for training exercises or staging activities during times of national emergency. In addressing the question of developing a superport on the South Atlantic Coast to handle megaships, the military considers the infrastructure for megaships to be excellent infrastructure for military deployment.

The South Atlantic regional meeting also addressed operational challenges of a regulatory nature. A number of participants stated that shippers were frustrated by U.S. Customs Service procedures for clearing cargo. As recently as 10 years ago, U.S. Customs agency personnel couldn't get proper information associated with containerized cargo. Today, U.S. Customs gets about 99 percent of the information on cargo movement. The problem remains for the ports to match the information on the paper to the contents of the containers. Conference participants strongly urged that the process of clearing cargo through Customs be expedited, although it appears that the problem often lies with shippers not providing information in a timely manner on containers destined for export.

Port representatives felt challenged by what they regarded as antiquated requirements to move cargo to meet Customs' needs. The representatives questioned why they should have to ship containers to another location for the Customs' inspection when the containers could be checked at the port of entry. Under the present system, attendees saw no need for the double handing of containers. Participants felt that such double handling benefits only the transportation brokers when containers are shipped to another location to be inspected before they can be sent to the customer's door. Customs Service officials felt that information systems alone could not guarantee container contents, nor could they station inspectors at every port, so ultimately some cargo will go elsewhere for inspection.

Many meeting participants felt that because ports create jobs, decisions on port dredging were made on the basis of political clout versus competent market analysis. Attendees noted that there was prioritization employed in compiling the Base Realignment and Closure (BRAC) list for military installations. It was suggested that the politically driven decisions on specific dredging projects could be taken out of the hands of individual congressmen by using a process analogous to that employed for the BRAC program, where Congress had to vote either up or down on the entire list of bases proposed for realignment or closure. These participants suggested that using a similar system for our ports, the U.S. could force decisions for national investments to accommodate megaships. But as a prerequisite to making the list and evaluating the choices, decisionmakers would have to be given a total systems perspective using an analytical model that has yet to be developed.

ON ACCESS TO PORTS

"Our transportation system, after all, can only be as strong as its weakest link, and so we need to ensure sound access to our ports. The principles and programs of NEXTEA do that, and we want to see them incorporated into the final bill that Congress passes and implements, as well as by a DOT that has incorporated Secretary Slater's vision of a 21st century transportation system that is international in reach, intermodal in form, intelligent in character, and inclusive in its service."

Mortimer Downey
Deputy Secretary of Transportation,
addressing the
American Association of Port Authorities Convention
September 23, 1997

Cross-Cutting Issues

The previous section has attempted to capture major regional issues and activities that were highlighted at each of the four regional meetings. This section presents broad, cross-cutting areas of discussion that were common to all of the meetings. These eight topical areas were: Market Prediction, Public Involvement and Education, Planning Perspective, Port Capacity, Intelligent Transportation Systems Applications, Data Needs, Labor Issues, and Regulatory Issues. It should be noted that many of these issues are not unique to the introduction of megaships, but reflect the transportation challenges associated with dramatic increases in international freight movement.

Issue Area—*Prediction*

Proponents of megaships contend that historically, demand often does not surface until a product is introduced. On the demand side, there is rapid change in the products and services that are introduced into the market and those that are replaced. The challenge for transportation providers and enablers becomes one of adjusting a fairly static transportation system to meet future needs. Product demands and services change quickly, but because of large capital-intensive infrastructure investments, improvements to the transportation system require much more time. Market uncertainties are, by nature, greater than technological uncertainties. The central question addressed how intelligent transportation investments could be made in light of this environment of uncertainty surrounding megaship calls.

The issue of how changes in ship design (megaships) would impact transportation infrastructure and operations was further broken down into subordinate questions: will we see megaships, where will we see them, how many of them will we see, and when will they come? Some meeting participants questioned whether the trend towards increasing ship sizes will continue ever upward. They contended that not all carriers are persuaded by the economies of scale of megaships and noted that there are actually diseconomies for loading, unloading, and accommodating small, diverse, or expedited cargoes carried by these ships. Some carriers have made a decision to stay with a 3,500 TEU maximum on their ships.

Meeting participants were unanimous in their agreement that if larger carriers elect to use megaships, these ship deployments will have a ripple effect throughout the fleet. Attendees saw three possible market scenarios developing in international waterborne commerce:

1) Megaship markets with larger concentrations of cargo;
2) Fastship markets with smaller concentrations of time-sensitive cargos (the cargo "conveyor belt" analogy); and
3) Major residual markets where service by medium to small ships would predominate.

Some industry analysts have called for studies of megaships using analogies of the unsuccessful deployment of large oil tankers commissioned in the 1960s and

How Big Will Mega-Ships Get?

	TEU Capacity	Length Overall (Ft.)	Beam (Ft.)	Maximum Draft (Ft.)
HDW CS 5860*	5,864	905	131	46
HDW CS 6800	6,800	1,000	131	46
HDW Propoeed "Jumbo"	8,000	1,099	151	46
P & O "Flight of Fancy"	15,000	1,312	226	46

Source: AAPA, HDW and P & O Containers

* HDWARLDTSWERKE-DEUTSCH WERFT AG

19/Us. Uthers observed that today's ships don't tend to be fully loaded (ships generally sail 85 percent loaded) and questioned if there was sufficient cargo to justify megaships. Currently, there are more ships in service than there is freight to fill them, with some estimates ranging as high as 50 percent overcapacity among steamship lines. Those who urged caution in accepting predictions calling for the introduction of ships of ever increasing size noted that there is a point where ships will become too big, and then the operating costs will go up and/or they will find there is simply too much inventory or assets tied up in one place at one time. At some point, larger megaships could off load more than anyone could handle and pick up more than anyone could deliver.

Another technology discussed at the regional meetings was the "FastShip" concept. FastShip Atlantic, a Virginia company, has developed a container transport system which utilizes new vessel technology and new loading/unloading technology to provide much faster transatlantic service (3.5 days) than either current containerships or next generation megaships (8 days). The FastShip vessel will be smaller than a post-Panamax vessel (770 feet in length, 110 feet across the beam, and carrying 1,320 TEUs per vessel) but will operate at up to 45 knots (as opposed to 25 knots for post-Panamax and megaships). In port, the FastShip will not be loaded using conventional cranes—instead, strings of loaded railcars will be moved on and off the vessel, which will be berthed at the stern. FastShip is currently in the testing stage.

Some participants observed that even if the Federal Government does nothing, the market will take its course. They noted that Federal money has been squandered on projects that attempted to anticipate markets that didn't develop. These participants cautioned against Federal cost-sharing programs or grants targeted to develop megaship ports. The attendees espousing this point of view believed that public entities and the private sector will invest in the megaship ports if there are economic benefits. The question becomes one of whether the ship operators will participate in paying for the development of port infrastructure to handle their ships. The challenge to transportation decisionmakers is to consider differences between the commercial life and operational life of an investment—what is the likely long-term impact of investments made to increase transportation capacity to accommodate potential port calls by larger and/or faster ships?

Issue Area—*Public Interest and Education*

Many of those present at the regional meetings commented that the public doesn't see the need for tax increases and project development to support freight movements. This lack of transportation awareness was characterized as an education problem for Federal, State, and local audiences. The public was seen as not understanding the importance of freight movement to their economy or quality of life, or how transportation systems work. Many attendees noted that the MPOs and elected officials have to be educated as well to raise their awareness of these issues. Nevertheless, participants believed that these messages can be conveyed if you get shippers, carriers, truckers and terminal people together to talk to the general public.

Speakers observed that difficult problems are associated with getting the public to finance larger scale projects of regional or national significance. People were seen as being willing to tax themselves for local projects that promise specific improvements to their lives, but the public often can't be sold on building something to benefit other jurisdictions. Such projects